



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,387	07/17/2003	Geoffrey Wehrman	1252.1071CIP3	8762

21171 7590 06/13/2007
STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

ROSE, HELENE ROBERTA

ART UNIT	PAPER NUMBER
----------	--------------

2163

MAIL DATE	DELIVERY MODE
-----------	---------------

06/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/620,387	Applicant(s) WEHRMAN ET AL.	
	Examiner Helene Rose	Art Unit 2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/4/2007 (Reopen Prosecution).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. In view of the **Appeal** Brief, filed on 4/4/2007, **PROSECUTION IS HEREBY REOPEN**. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

2. Claims 1-12 are pending and presented for examination.

Claim Rejections – 35 U.S.C – 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Slaughter (US Patent No. 6,058,400, Date of Patent: May 2, 2000).

Art Unit: 2163

Claim 9:

Regarding claim 9, Slaughter teaches a cluster of computer systems, comprising: storage devices storing at least one file (column 9, lines 55-61, wherein one download application provides for DLM, Slaughter);

a storage area network coupled to said storage devices (column 5, lines 32-35, Slaughter);

at least one metadata server node, coupled to said storage area network (column 6, lines 24-35, respectively, Slaughter); and

metadata client nodes, coupled to said storage area network, to release a lock on virtual metadata when relocation of said at least one metadata server is underway during execution of operations on the virtual metadata (column 11, lines 41-44, wherein this reads over "when a node obtains access to a write lock, the node marks the write lock as unavailable performs the desired operation and then releases the write lock", Slaughter).

Claim Rejections – 35 U.S.C – 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US Patent No. 6,751,616, Date Filed: January 28, 2000) in view of Slaughter (US Patent No. 6,058,400, Date of Patent: May 2, 2000).

Art Unit: 2163

Claims 1,5, and 10:

Regarding claims 1,5, 10, discloses a method of executing operations on virtual metadata/ at least one computer readable medium/and a method of relocating a metadata server in a network of computer system utilizing the same functionality, wherein **Chan** teaches a method of executing operations on virtual metadata/ at least one computer readable medium/ and a method of relocating a metadata server in a network of computer system nodes in which DMAPI has been implemented, comprising:

comprising:

“retargeting objects on the computer system nodes accessing a current metadata server to a new metadata server” (column 10, lines 10-16, wherein this reads over “when a node is removed from the cluster of active nodes that make up the distributed DLM system, the information in each master RLO(i.e., resource locking objects), that was on that node must be transferred to a new master node and installed in a master RLO for that resource on that new node, wherein this information is transferred in a series of one or more messages, wherein a given resource has only one master RLO; and column 11, lines 4-11, wherein this reads over ‘ hash map revision, i.e., known as re-mapping, wherein the hash value ranges that are associated with the nodes that have been removed from the cluster are remapped to the nodes that remain in the cluster and for resources associated with hash values that belong to ranges that have been remapped, the lock information already constructed in the master RLO’s on the old nodes is then transferred to the new nodes, Chan); and

Chan does not teach “releasing a lock on virtual metadata when relocation of the metadata server is underway during execution of operations on the virtual metadata”.

On the other hand, Slaughter teaches “releasing a lock on virtual metadata when relocation of the metadata server is underway during execution of operations on the

virtual metadata" (column 11, lines 41-44, wherein this reads over "when a node obtains access to a write lock, the node marks the write lock as unavailable performs the desired operation and then releases the write lock", Slaughter).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate Slaughter teachings into Chan system. A skilled artisan would have been motivated to combine as suggest by Slaughter [column 3, lines 60-65 and column 7, lines 38-52] for optimizing the performance and capabilities of a storage area network.

Claims 2,6, and 11:

Regarding Claims 2, 6, and 11, Slaughter does not explicitly teach wherein the virtual metadata is formed as a private data chain.

On the other hand, Chan teach wherein the virtual metadata is formed as a private data chain (column 12, lines 3-10, wherein the open lock table may be a single table with open locks and active nodes combined and replicated on all the active nodes in the cluster, and wherein the open lock table can be a virtual table constructed from separate open lock tables, in which separate is interpreted to be confined to particular place and private data is known accessed only by methods of the class in which it defines, Chan), and said method further comprises locking a pointer to the private data chain prior to linking to a first item of private data in the private data chain (see Figure 9, all features, wherein locking objects to the new master code followed by phase I done messenger and wherein private data is known to be data that can be accessed only by members of the class in which it defines and column 20, lines 9-20, Chan).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate Slaughter teachings into Chan system. A skilled artisan would have been motivated to combine as suggest by Slaughter [column 3, lines 60-65 and

column 7, lines 38-52] for optimizing the performance and capabilities of a storage area network

Claims 3,7, and 12:

Regarding claims 3, 7, and 12, Slaughter does not explicitly teach a method further comprising waiting, after said releasing, for availability of a lock on the pointer to the private data chain upon completion of relocation of the metadata server.

On the other hand, Chan teach a method further comprising waiting, after said releasing, for availability of a lock on the pointer to the private data chain upon completion of relocation of the metadata server (columns 19-20, lines 43-62, and lines 4-8, wherein active nodes have requested locks on all three resources which includes the buffer and data blocks, where all three resources are open, and wherein the method of transferring lock information from an old master node to a new master node without completely freezing the processing of locks and column 23, lines 31-33, wherein locks are granted to the processes on the terminating nodes be released to the next lock request in the queue, Chan), before continuing with execution of operations on the virtual metadata (column 25, lines 11-18, wherein all of the information required to continue managing requesting locks are available in the master resource locator objects, Chan).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate Slaughter teachings into Chan system. A skilled artisan would have been motivated to combine as suggest by Slaughter [column 3, lines 60-65 and column 7, lines 38-52] for optimizing the performance and capabilities of a storage area network.

Claims 4 and 8:

Regarding claims 4 and 8, Slaughter does not explicitly teach wherein said releasing; waiting and continuing execution of operations on the virtual metadata after relocation of the metadata server are performed transparently to users.

On the other hand, Chan teaches wherein said releasing, waiting and continuing execution of operations on the virtual metadata after relocation of the metadata server are performed transparently to users (column 8, lines 58-61, wherein light waves are defined as electromagnetic radiation with a wavelength that is visible to the eye also know to be transparent, wherein transparent is known as allowing light to pass through, and able to be seen through, Chan).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate Slaughter teachings into Chan system. A skilled artisan would have been motivated to combine as suggest by Slaughter [column 3, lines 60-65 and column 7, lines 38-52] for optimizing the performance and capabilities of a storage area network.

Prior Art Made of Record

1. Chan (US Patent No. 6,751,616)
2. Brandt et al. (Non-Patent Literature, Efficient Metadata Management in Large Distributed Storage System)
3. Slaughter (US Patent No. 6,058,400)
4. Curran (US Patent No. 7,010,528)
5. Curran et al (US Publication No. 2003/0220943)
6. Aridor et al (US Patent No. 6,618,737)

Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene R. Rose whose telephone number is (571) 272-0749. The examiner can normally be reached on 8:00am - 4:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HRR
Technology Center 2100
June 4, 2007



DON WONG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100